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Pickwick Lake, Colbert and Lauderdale Counties, Alabama. Tishomingo County, Mississippi. Harding County, Tennessee

Pacific Northwest Environmental Research Lab, Corvallis, Oreg

Prepared for

Alabama Water Improvement Commission

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16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

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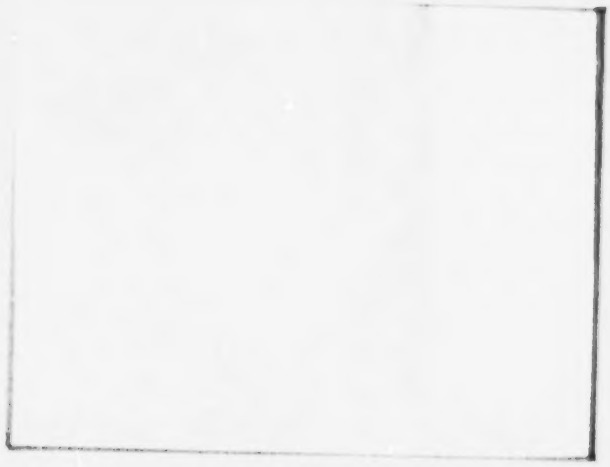

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REPORT
ON
PICKWICK LAKE
COLBERT AND LAUDERDALE COUNTIES
ALABAMA
TISHOMINGO COUNTY, MISSISSIPPI
HARDING COUNTY, TENNESSEE

EPA REGION IV
WORKING PAPER No. 233

WITH THE COOPERATION OF THE

ALABAMA WATER IMPROVEMENT COMMISSION

AND THE

ALABAMA NATIONAL GUARD

JULY 1976

1a

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by the U.S. Environmental Protection Agency and to augment plans implementation by the states.

ACKNOWLEDGEMENTS

The staff of the National Eutrophication Survey (Office of Research and Development, U.S. Environmental Protection Agency) expresses sincere appreciation to the Alabama Water Improvement Commission for professional involvement and to the Alabama National Guard for conducting the tributary sampling phase of the Survey.

E. John Williford, Chief, Surveillance and Monitoring Section; and John C. Chitwood, Biologist, Surveillance and Monitoring Section; and Sam L. Coleman, Water Quality Planning Section; and M. H. Floyd, Engineer, Surveillance and Monitoring Section; and Truman Green, Engineer, Municipal Waste Control Section; and Tim McCartha, Biologist, Surveillance and Monitoring Section; and James E. McIndoe, Engineer, Water Quality Planning Section; and Richard T. Maddox, Engineer, Industrial Waste Control Section; and James T. White, Engineer, Municipal Waste Control Section provided invaluable lake documentation and counsel during the course of the Survey.

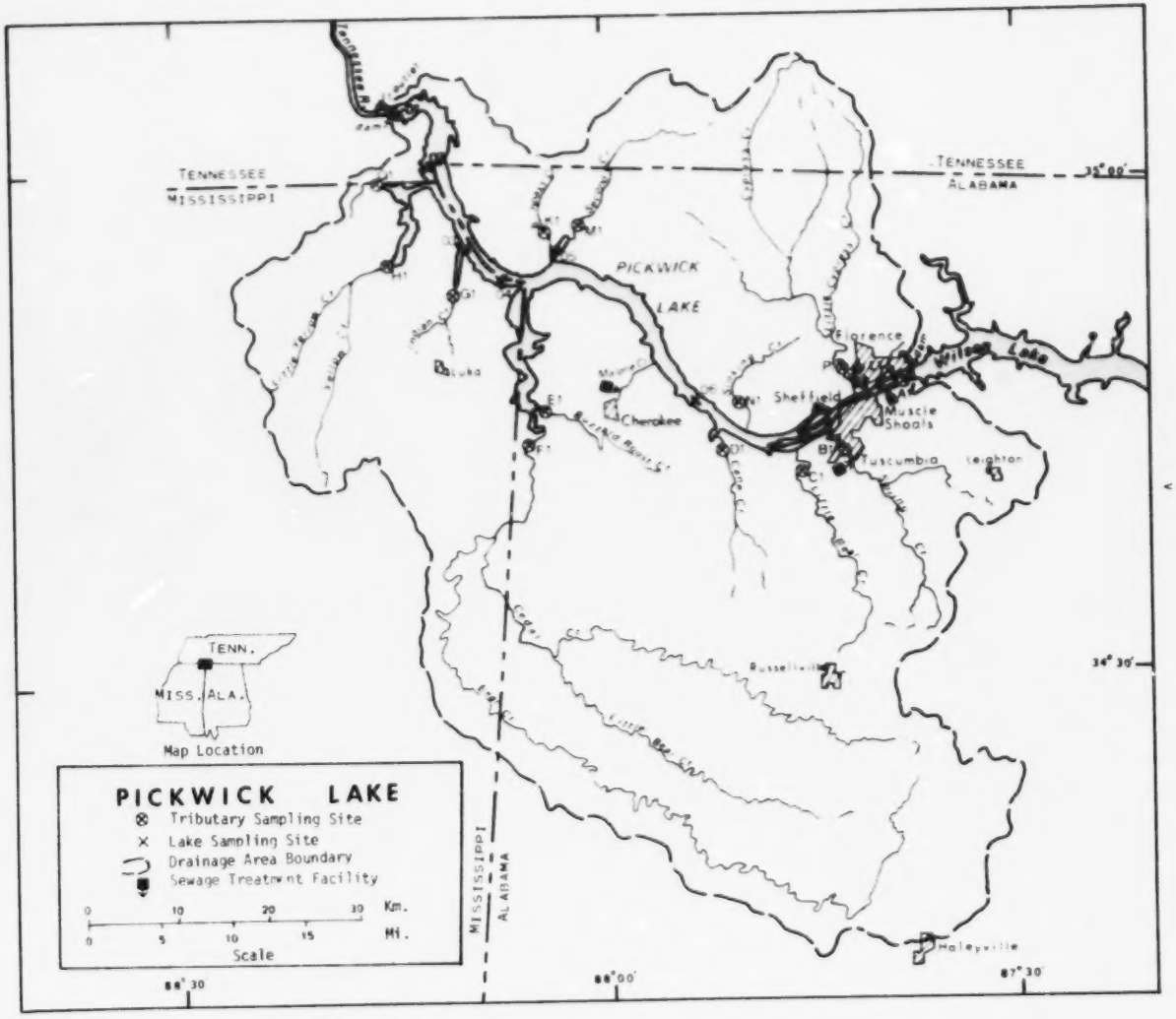
Major General Charles A. Rollo, Adjutant General of Alabama, and Project Officer Lt. Col. Wash B. Ray, who directed the volunteer efforts of the Alabama National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF ALABAMA

LAKE NAME	COUNTY
Bankhead	Walker
Gantt	Covington
Guntersville	Marshall, Johnson
Holt Lock and Dam	Tuscaloosa
Lay	Chilton, Coosa
Martin	Elmore, Tallapoosa
Mitchell	Coosa, Chilton
Pickwick	Colbert, Lauderdale (Tishomingo in MS and Hardin in TN)
Purdy	Jefferson, Shelby
Weiss	Cherokee
Wilson	Lauderdale, Colbert, Lawrence


TENNESSEE
MISSISSIPPI
TENNESSEE
ALABAMA
35° 00'
PICKWICK
LAKE
Florence
Wilson Lake
Muscle
Shoals
Tuscumbia
Leighton
Cherokee
Russellville
34° 30'
Haleyville
TENN.
MISS.
ALA.
Map Location
PICKWICK LAKE
Tributary Sampling Site
Lake Sampling Site
Drainage Area Boundary
Sewage Treatment Facility
0 10 20 30 Km.
0 5 10 15 Mi.
Scale
MISSISSIPPI
ALABAMA
88° 30
88° 00
87° 30

REPORT ON PICKWICK LAKE, ALABAMA

STORET NO. 0109

I. CONCLUSIONS

A. Trophic Condition:*

Pickwick Lake is considered eutrophic, i.e. nutrient rich and highly productive, based upon field observations and analysis of Survey data. Whether such nutrient enrichment is to be considered beneficial or deleterious is determined by its actual or potential impact upon designated beneficial water uses of each lake.

Algae blooms were reported by Survey limnologists during the field investigation. Water clarity is low, being "greenish" and turbid. Of the 11 Alabama lakes sampled in 1973, only two had higher median total P and inorganic N levels, and none had higher median dissolved P. The algal assay results indicated the potential primary productivity in Pickwick Lake was high when sampled.

B. Rate-Limiting Nutrient:

Algal assay results and the high field ratio of inorganic nitrogen to orthophosphorus (N/P) at the spring sample collection indicates primary limitation by phosphorus. However, low N/P ratios were detected during the summer and fall sampling periods, suggesting nitrogen limitation.

*See Appendix E.

C. Nutrient Controllability:

1. Point sources -

The mean annual phosphorus contribution from known point sources was estimated to be 10.4% of the total load reaching Pickwick Lake during the sampling year. The Muscle Shoals National Fertilizer Development Center contributed 7.7% of the total load.

The present calculated loading of 16.09 g $P/m^2/yr$ is about five times that proposed by Vollenweider (1975) as eutrophic for a lake with such volume and retention time. However, Vollenweider's model may not apply to lakes with short hydraulic retention times; the retention time of Pickwick Lake is only nine days. Loading calculations yield a net export of phosphorus from Pickwick Lake, indicating that sampling was not adequate to depict actual loading and export rates. Additional sampling and an evaluation of current land use and presently undetected industrial or municipal sources is necessary before a nutrient budget for the lake can be determined.

2. Nonpoint sources -

The mean annual phosphorus load from "nonpoint" sources was about 89.6% of the total reaching Pickwick Lake. The Tennessee River contributed 85.6% of the total load, and ungaged drainage areas were estimated to have contributed

0.4%. Included in this Tennessee River "nonpoint" contribution is the entire chain of impoundments upstream from Pickwick Lake. An evaluation of the nutrient control requirements for the upstream sources in the Tennessee River watershed is needed as well as a determination of control requirements for Pickwick Lake.

In general, few lakes are nitrogen limited as a result of low nitrogen. Rather, excessive phosphorus levels shift limitations to nitrogen or other factors. Regardless of the primary nutrient limitation suggested by either algal assay or nutrient ratios, the most feasible approach to nutrient control, if desirable, is through available phosphorus control technology and subsequent establishment of phosphorus limitation within the water body.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

Lake and drainage basin characteristics are itemized below. Lake morphometry and mean hydraulic retention time were provided by the Tennessee Valley Authority; tributary flow data were provided by the Alabama District Office of the U.S. Geological Survey (USGS) (outlet drainage area includes the lake surface area). Drainage areas for tributaries F(1) and P(1) were provided by the Tennessee Valley Authority. Precipitation values are estimated by methods as outlined in National Eutrophication Survey (NES) Working Paper No. 175. A table of metric/English conversions is included in Appendix A.

A. Lake Morphometry:

1. Surface area: 174.56 km^2.
2. Mean depth: 6.5 meters.
3. Maximum depth: 26.5 meters.
4. Volume: 1,139.750 x 10^6 m^3.
5. Mean hydraulic retention time: 9 days.

B. Tributary and Outlet:
(See Appendix B for flow data)

1. Tributaries -

Name	Drainage area (km^2)	Mean flow (m^3/sec)
A(1) Tennessee River	79,642.4	1,397.84
B(1) Spring Creek	251.7	5.16
C(1) Little Bear Creek	139.9	1.84
D(1) Crane Creek	133.9	1.81
E(1) Buzzard Roost Creek	180.0	1.98
F(1) Bear Creek	2,450.1	36.25
G(1) Indian Creek	80.3	1.39
H(1) Yellow Creek	515.4	8.08
K(1) Bumpass Creek	45.1	1.10
L(1) Sweetwater Creek	12.7	0.30
M(1) Second Creek	170.2	2.72
N(1) Sinking Creek	98.7	1.34
P(1) Cypress Creek	551.7	9.57
Q(1) Sandy Creek Arm	17.3	0.28
Minor tributaries and immediate drainage -	540.3	20.12
Totals	84,829.7	1,489.78

2. Outlet - Tennessee River J(1) 85,003.8 1,526.95

C. Precipitation:

1. Year of sampling: 50.6 cm.
2. Mean annual: 48.0 cm.

III. LAKE WATER QUALITY SUMMARY

Pickwick Lake was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from six stations on the lake (one station was sampled once, three stations were sampled twice, and two stations were sampled three times) and from a number of depths at each station (see map, page v). During each visit, depth-integrated samples were collected from each station for chlorophyll a analysis and phytoplankton identification and enumeration. During the first visit, two 18.9-liter depth-integrated samples were composited from Stations 1 through 3, and from Stations 5 through 6 for algal assays. Maximum depths sampled were 23.2 meters at Station 1, 9.4 meters at Station 2, 9.1 meters at Station 3, 9.8 meters at Station 4, 15.2 meters at Station 5, and 9.4 meters at Station 6. For a more detailed explanation of NES methods, see NES Working Paper No. 175.

The results obtained are presented in full in Appendix C and are summarized in III-A for waters at the surface and at the maximum depth for each site. Results of the phytoplankton counts and chlorophyll a determinations are included in III-B. Results of the limiting nutrient study are presented in III-C.

PICKEREL LAKE
STONET CODE 0104

PHYSICAL AND CHEMICAL CHARACTERISTICS

PARAMETER		(6/ 4/73) S*** = 5				(8/15/73) S*** = 3				(10/22/73) S*** = 2			
	N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)		N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)		N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	
TEMPERATURE (DEG CENT)															
0.-1.5 M DEPTH	5	25.1- 28.5	25.5	0.0- 0.0		4	29.4- 30.6	29.4	0.0- 1.5		4	22.4- 23.3	22.9	0.0- 1.5	
MAX DEPTH**	5	21.6- 24.1	23.6	9.1- 14.0		3	28.8- 29.2	29.0	5.2- 15.2		2	22.3- 22.5	22.4	7.3- 15.2	
DISSOLVED OXYGEN (MG/L)															
0.-1.5 M DEPTH	0	***** - *****	*****	***** - *****		4	6.0- 9.5	7.0	0.0- 1.5		1	7.2- 7.2	7.2	1.5- 1.5	
MAX DEPTH**	5	3.1- 7.4	7.1	9.1- 14.0		3	5.0- 6.4	6.0	5.2- 15.2		2	7.0- 7.2	7.1	7.3- 15.2	
CONDUCTIVITY (UMHOS)															
0.-1.5 M DEPTH	5	138.- 150.	145.	0.0- 0.0		4	166.- 174.	173.	0.0- 1.5		4	164.- 175.	170.	0.0- 1.5	
MAX DEPTH**	5	138.- 150.	145.	9.1- 14.0		3	168.- 171.	171.	5.2- 15.2		2	163.- 166.	165.	7.3- 15.2	
PH (STANDARD UNITS)															
0.-1.5 M DEPTH	5	7.3- 8.7	7.6	0.0- 0.0		4	7.2- 7.4	7.3	0.0- 1.5		4	7.7- 7.8	7.7	0.0- 1.5	
MAX DEPTH**	5	7.3- 7.5	7.5	9.1- 14.0		3	7.2- 7.3	7.3	5.2- 15.2		2	7.4- 7.6	7.5	7.3- 15.2	
TOTAL ALKALINITY (MG/L)															
0.-1.5 M DEPTH	5	51.- 58.	53.	0.0- 0.0		4	56.- 58.	58.	0.0- 1.5		4	56.- 63.	59.	0.0- 1.5	
MAX DEPTH**	5	49.- 57.	56.	9.1- 14.0		3	52.- 58.	57.	5.2- 15.2		1	60.- 60.	60.	7.3- 7.3	
TOTAL P (MG/L)															
0.-1.5 M DEPTH	5	0.036-0.079	0.062	0.0- 0.0		4	0.035-0.055	0.042	0.0- 1.5		4	0.056-0.061	0.059	0.0- 1.5	
MAX DEPTH**	5	0.044-0.075	0.057	9.1- 14.0		3	0.039-0.052	0.041	5.2- 15.2		1	0.061-0.061	0.061	7.3- 7.3	
DISSOLVED ORTHO P (MG/L)															
0.-1.5 M DEPTH	5	0.005-0.050	0.030	0.0- 0.0		4	0.011-0.055	0.028	0.0- 1.5		4	0.039-0.050	0.046	0.0- 1.5	
MAX DEPTH**	5	0.022-0.035	0.028	9.1- 14.0		3	0.033-0.052	0.040	5.2- 15.2		1	0.046-0.046	0.046	7.3- 7.3	
NO2+NO3 (MG/L)															
0.-1.5 M DEPTH	5	0.200-0.500	0.440	0.0- 0.0		4	0.210-0.380	0.325	0.0- 1.5		4	0.410-0.480	0.445	0.0- 1.5	
MAX DEPTH**	5	0.440-0.490	0.470	9.1- 14.0		3	0.320-0.380	0.360	5.2- 15.2		1	0.410-0.410	0.410	7.3- 7.3	
AMMONIA (MG/L)															
0.-1.5 M DEPTH	5	0.050-0.140	0.110	0.0- 0.0		4	0.050-0.110	0.055	0.0- 1.5		4	0.050-0.060	0.060	0.0- 1.5	
MAX DEPTH**	5	0.060-0.160	0.110	9.1- 14.0		3	0.080-0.100	0.090	5.2- 15.2		1	0.060-0.060	0.060	7.3- 7.3	
KJELDAHL N (MG/L)															
0.-1.5 M DEPTH	5	0.300-1.000	0.400	0.0- 0.0		4	0.400-0.800	0.450	0.0- 1.5		4	0.200-0.300	0.200	0.0- 1.5	
MAX DEPTH**	5	0.200-0.300	0.200	9.1- 14.0		3	0.300-0.500	0.400	5.2- 15.2		1	0.200-0.200	0.200	7.3- 7.3	
SECCHI DISC (METERS)															
	5	0.8- 1.0	1.0			3	1.2- 2.1	1.8			2	0.4- 1.2	0.8		

* N = NO. OF SAMPLES
** MAXIMUM DEPTH SAMPLED AT EACH SITE
*** S = NO. OF SITES SAMPLED ON THIS DATE

B. Biological Characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal Units per ml
06/06/73	1. Melosira	840
	2. Flagellates	450
	Total	1,290
08/15/73	1. Flagellates	340
	2. Melosira	300
	3. Cyclotella	220
	4. Merismopedia	50
	5. Tetraedron	40
	Other genera	160
	Total	1,110
10/22/73	1. Flagellates	1,300
	2. Melosira	1,210
	3. Merismopedia	60
	4. Cyclotella	20
	5. Dinoflagellates	20
	Other genera	20
	Total	2,630

2. Chlorophyll *a* -

Sampling Date	Station Number	Chlorophyll *a* (µg/l)
06/09/73	1	1.1
	2	1.5
	3	2.1
	4	2.2
	5	0.6
	6	1.2
08/15/73	1	2.3
	2	3.4
	3	3.5
	4	6.3
	5	2.1
	6	---
10/22/73	1	18.2
	2	---
	3	---
	4	---
	5	1.6
	6	---

C. Limiting Nutrient Study:

1. Stations 1, 2, and 3 -

a. Autoclaved, filtered, and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.035	0.552	10.8
0.010 P	0.045	0.552	13.6
0.020 P	0.055	0.552	15.0
0.050 P	0.085	0.552	19.0
0.025 P + 0.5 N	0.060	1.052	21.0
0.050 P + 1.0 N	0.085	1.552	35.0
1.0 N	0.035	1.552	8.4

b. Filtered and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.021	0.568	6.0
0.010 P	0.031	0.568	10.3
0.020 P	0.041	0.568	14.4
0.050 P	0.071	0.568	16.4
0.025 P + 0.5 N	0.046	1.068	19.5
0.050 P + 1.0 N	0.071	1.568	29.8
1.0 N	0.021	1.568	5.6

2. Stations 4, 5, and 6 -

a. Autoclaved, filtered, and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.024	0.513	6.4
0.010 P	0.034	0.513	10.3
0.020 P	0.044	0.513	12.1
0.050 P	0.074	0.513	15.4
0.025 P + 0.5 N	0.049	1.013	17.9
0.050 P + 1.0 N	0.074	1.513	36.3
1.0 N	0.024	1.513	6.6

b. Filtered and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.019	0.500	3.6
0.010 P	0.029	0.500	9.2
0.020 P	0.039	0.500	11.6
0.050 P	0.069	0.500	14.2
0.025 P + 0.5 N	0.044	1.000	15.9
0.050 P + 1.0 N	0.069	1.500	31.0
1.0 N	0.019	1.500	5.2

3. Discussion -

The control yields of both algal assays with Selenastrum capricornutum indicate that the potential primary productivity of Pickwick Lake was high at the time assay samples were collected. Also, the significantly increased yields with increased levels of orthophosphate in both assays indicate the lake was phosphorus limited at the time of sample collection. Simultaneous addition of nitrogen and phosphorus spikes produced the maximum yield obtained for each assay. No growth response accompanied spikes of nitrogen alone.

The N/P ratio in the field samples was about 19/1, indicating that the lake was phosphorus limited at the time assay samples were collected. However, N/P field ratios of about 12/1 and 10/1 for the summer and fall samples respectively suggest primary limitation by nitrogen (an N/P ratio of 14/1 or greater generally reflects phosphorus limitation).

IV. NUTRIENT LOADINGS
(See Appendix D for data)

For the determination of nutrient loadings, the Alabama National Guard collected monthly near-surface grab samples from each of the tributary sites indicated (see map, page v), except for the high runoff months of January and February when two samples were collected. Sampling was begun in March 1973, and was completed in February 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Alabama District Office of the USGS for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of the USGS computer program for calculating stream loadings. Nutrient loads indicated for tributaries are those measured minus known point source loads, if any.

Nutrient loadings for unsampled "minor tributaries and immediate drainage" ("ZZ" of USGS) were estimated by using the mean annual nutrient loads, in $kg/km^2/year$, at Stations C(1), D(1), F(1), G(1), H(1), K(1), L(1), M(1), N(1), and Q(1), and multiplying the means by the ZZ drainage area in km^2.

Nutrient loads for the cities of Sheffield, Florence, Muscle Shoals, Tuscumbia, and Cherokee wastewater treatment plants were

estimated at 1.134 kg P and 3.401 kg N/capita/year. Annual nutrient loads for the National Fertilizer Development Center were provided by the plant operator (personal communication).

A. Waste Sources:

1. Known municipal -

Name	Population Served*	Treatment	Mean Flow** ($m^3/d \times 10^3$)	Receiving Water
Sheffield	13,115	Primary clarification	4.964	Tennessee River
Florence	32,031	Primary clarification	12.881	Cypress Creek
Florence outfall	1,500	None	0.568	Tennessee River
Muscle Shoals	6,907	Extended aeration	2.614	Unnamed Creek
Tuscumbia	8,828	Trickling filter	3.341	Spring Creek
Cherokee	1,400	Secondary	0.530	Malone Creek

2. Known industrial -

Name	Product	Treatment	Mean Flow ($m^3/d \times 10^3$)	Receiving Water
National Fertilizer Development Center (Muscle Shoals)	Fertilizer	Unknown	Unknown	Unnamed Creek/ Tennessee River

*1970 census.
**Estimated at 0.3785 m^3/capita/day.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (nonpoint load) -		
A(1) Tennessee River	2,403,215	85.6
B(1) Spring Creek	1,050	<0.1
C(1) Little Bear Creek	2,110	0.1
D(1) Crane Creek	2,385	0.1
E(1) Buzzard Roost Creek	1,975	0.1
F(1) Bear Creek	59,885	2.1
G(1) Indian Creek	3,065	0.1
H(1) Yellow Creek	12,045	0.4
K(1) Bumpass Creek	395	<0.1
L(1) Sweetwater Creek	690	<0.1
M(1) Second Creek	1,165	<0.1
N(1) Sinking Creek	2,720	0.1
P(1) Cypress Creek	13,260	0.5
Q(1) Sandy Creek Arm	260	<0.1
b. Minor tributaries and immediate drainage (nonpoint load) -	12,425	0.4
c. Known municipal STP's -		
Sheffield	14,870	0.5
Florence	36,890	1.3
Florence outfall	2,380	0.1
Muscle Shoals	7,835	0.3
Tuscumbia	10,010	0.4
Cherokee	1,590	0.1
d. Septic tanks* -	60	<0.1
e. Known industrial -		
National Fertilizer Development Center	215,570	7.7
f. Direct precipitation** -	3,055	0.1
Total	2,808,905	100.0
2. Output - J(1) Tennessee River	2,995,305	
3. Net annual P export*** -	186,400	

*Estimate based on 220 lakeshore dwellings.
**Estimated (see NES Working Paper No. 175).
***Export probably due to unknown sources and/or sampling errors.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/yr	% of total
a. Tributaries (nonpoint load) -		
A(1) Tennessee River	57,455,310	94.4
B(1) Spring Creek	262,240	0.4
C(1) Little Bear Creek	44,735	0.1
D(1) Crane Creek	34,070	0.1
E(1) Buzzard Roost Creek	58,355	0.1
F(1) Bear Creek	1,010,945	1.7
G(1) Indian Creek	37,025	0.1
H(1) Yellow Creek	197,250	0.3
K(1) Bumpass Creek	18,205	<0.1
L(1) Sweetwater Creek	19,530	<0.1
M(1) Second Creek	39,245	0.1
N(1) Sinking Creek	73,455	0.1
P(1) Cypress Creek	260,970	0.4
Q(1) Sandy Creek Arm	6,410	<0.1
b. Minor tributaries and immediate drainage (nonpoint load) -	276,635	0.5
c. Known municipal STP's -		
Sheffield	44,605	0.1
Florence	110,640	0.2
Florence outfall	6,395	<0.1
Muscle Shoals	23,490	<0.1
Tuscumbia	30,025	0.1
Cherokee	4,760	<0.1
d. Septic tanks* -	2,345	<0.1
e. Known industrial -		
National Fertilizer Development Center	624,035	1.0
f. Direct precipitation** -	188,455	0.3
Total	60,829,130	100.0

2. Output - J(1) Tennessee River 55,474,895

3. Net annual N accumulation - 5,354,235

*Estimate based on 220 lakeshore dwellings.
**Estimated (see NES Working Paper No. 175).

D. Mean Annual Nonpoint Nutrient Export by Subdrainage Area:

Tributary	kg P/km^2/yr	kg N/km^2/yr
A(1) Tennessee River	30	721
B(1) Spring Creek	4	1,161
C(1) Little Bear Creek	15	320
D(1) Crane Creek	18	254
E(1) Buzzard Roost Creek	11	324
F(1) Bear Creek	24	413
G(1) Indian Creek	38	461
H(1) Yellow Creek	23	383
K(1) Bumpass Creek	9	404
L(1) Sweetwater Creek	54	1,538
M(1) Second Creek	7	231
N(1) Sinking Creek	28	744
P(1) Cypress Creek	24	473
Q(1) Sandy Creek Arm	15	370

E. Yearly Loadings:

In the following table, the existing phosphorus annual loading is compared to the relationship proposed by Vollenweider (1975). Essentially, his eutrophic loading is that at which the receiving waters would become eutrophic or remain eutrophic; his oligotrophic loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic loading would be considered one between eutrophic and oligotrophic.

Note that Vollenweider's model may not apply to lakes with short hydraulic retention times or in which light penetration is severely restricted by high concentrations of suspended solids in the surface waters.

	Total Yearly Phosphorus Loading ($g/m^2/yr$)
Estimated loading for Pickwick Lake	16.09
Vollenweider's eutrophic loading	3.43
Vollenweider's oligotrophic loading	1.71

V. LITERATURE REVIEWED

U.S. Environmental Protection Agency. 1975. National Eutrophication Survey Methods 1973-1976. National Eutrophication Survey Working Paper No. 175. National Environmental Research Center, Las Vegas, Nevada, and Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon.

Vollenweider, R. A., 1975. Input-Output Models With Final Reference to the Phosphorus Loading Concept in Limnology. Schweiz. Z. Hydrol. 37: 53-84.

VI. APPENDICES

APPENDIX A

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0109 PICKWICK RESERVOIR

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 85003.7

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
0109A1	79642.4	2169.07	2630.07	2264.78	1548.37	1135.22	981.89	962.77	937.57	875.56	824.02	1072.08	1531.66	1397.69
0109B1	251.7	7.08	9.63	9.20	7.65	4.96	3.11	3.11	2.61	2.38	2.04	4.25	6.23	5.16
0109C1	139.9	3.83	4.87	4.70	3.51	1.30	0.45	0.45	0.31	0.24	0.17	0.93	2.29	1.84
0109D1	133.9	3.256	5.040	4.814	3.625	1.161	0.283	0.283	0.164	0.119	0.079	0.736	2.379	1.809
0109E1	180.8	3.26	5.44	5.24	3.77	1.33	0.45	0.45	0.28	0.22	0.15	0.93	2.44	1.98
0109F1	2079.8	64.42	83.53	84.95	59.47	32.28	16.85	14.72	9.63	7.08	5.52	19.82	39.93	36.25
0109G1	80.3	3.60	3.06	2.52	1.67	0.99	0.65	0.48	0.48	0.51	0.37	1.16	1.30	1.39
0109H1	515.4	16.99	20.02	16.51	10.90	5.95	3.45	2.38	2.27	2.44	1.53	7.05	8.33	8.08
0109J1	85003.7	2126.60	2299.33	2517.37	1659.37	1427.17	1044.89	1127.01	1127.01	928.79	1005.25	1197.80	1094.40	1526.78
0109K1	45.1	1.54	2.18	2.41	1.87	0.99	0.62	0.51	0.40	0.34	0.37	0.74	1.27	1.10
0109L1	12.7	0.425	0.595	0.651	0.510	0.272	0.170	0.142	0.105	0.093	0.102	0.198	0.340	0.298
0109M1	170.2	4.11	6.51	7.22	5.10	2.15	1.10	0.85	0.57	0.48	0.54	1.39	2.94	2.72
0109N1	98.7	2.18	3.45	3.37	2.72	0.96	0.34	0.34	0.22	0.18	0.13	0.68	1.64	1.34
0109P1	541.3	14.30	21.52	24.35	17.27	7.93	4.25	3.40	2.32	2.04	2.27	5.24	10.76	9.57
0109Q1	17.3	0.566	0.680	0.538	0.368	0.212	0.142	0.108	0.105	0.110	0.079	0.246	0.283	0.284
0109Z2	1095.6	31.15	47.01	48.99	36.53	16.34	7.99	6.94	4.84	4.19	4.05	11.61	23.73	20.12

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 85003.7
SUM OF SUB-DRAINAGE AREAS = 85003.8
TOTAL FLOW IN = 17964.40
TOTAL FLOW OUT = 18354.96

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0109A1	3	73	2264.781	3	1480.971				
	4	73	1548.365	4	2976.191				
	5	73	1135.222	5	1701.843	6	1574.417	15	1546.180
	6	73	981.892	15	1925.546				
	7	73	962.773	14	1127.010				
	8	73	937.571	11	1384.696				
	9	73	875.557	16	1044.892				
	10	73	824.020	13	560.674				
	11	73	1072.076	17	886.317				
	12	73	1531.658	8	2137.922				
	1	74	2169.070	5	5623.723	19	6357.129		
	2	74	2630.069	10	4587.328	23	4190.891		

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TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0109 PICKWICK RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0109H1	3	73	29.450	4	7.079				
	4	73	10.477	4	7.504				
	5	73	6.003	15	3.879				
	6	73	4.870	15	7.362				
	7	73	4.814	9	2.067				
	8	73	1.869	21	1.388				
	9	73	1.076	15	1.218				
	10	73	1.444	13	1.274				
	11	73	4.814	17	0.688				
	12	73	11.044	8	3.823				
	1	74	25.202	9	18.972	22	12.176		
	2	74	18.689	10	7.079	24	8.778		
0109C1	3	73	15.857	4	3.058				
	4	73	5.493	12	2.148				
	5	73	2.095	15	0.765				
	6	73	1.274	15	3.256				
	7	73	1.218	9	1.388				
	8	73	0.136	21	0.071				
	9	73	0.048	15	0.057				
	10	73	0.076	13	0.042				
	11	73	1.303	17	0.014				
	12	73	5.805	8	0.708				
	1	74	13.592	9	10.194	22	6.371		
	2	74	10.194	10	2.973	24	4.531		
0109D1	3	73	15.348	4	3.256				
	4	73	5.522	12	2.265				
	5	73	2.095	15	0.566				
	6	73	1.133	15	3.398				
	7	73	1.048	9	1.246				
	8	73	0.057	21	0.023				
	9	73	0.011	15	0.014				
	10	73	0.028	13	0.017				
	11	73	1.133	17	0.003				
	12	73	5.805	8	0.510				
	1	74	13.026	22	6.230				
	2	74	9.769	10	3.256	24	4.531		
0109E1	3	73	20.671	4	3.285				
	4	73	6.230	13	2.039				
	5	73	2.209	15	0.736				
	6	73	1.303	15	3.540				
	7	73	1.246	9	1.416				
	8	73	0.122	21	0.059				
	9	73	0.031	15	0.045				
	10	73	0.065	13	0.045				
	11	73	1.303	17	0.011				
	12	73	6.513	8	0.708				
	1	74	16.990	9	12.176	22	7.362		
	2	74	12.176	10	3.256	24	4.955		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0109 PICKWICK RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0109F1	3	73	238.145	4	46.723				
	4	73	113.975	13	93.729				
	5	73	44.174	15	24.636				
	6	73	33.272	15	32.848				
	7	73	18.866	9	31.432				
	8	73	5.663	21	4.672				
	9	73	4.672	15	7.985				
	10	73	5.522	13	3.908				
	11	73	33.980	17	11.468				
	12	73	59.465	8	53.802				
	1	74	189.723	9	168.485	22	110.436		
	2	74	130.257	10	97.693	24	116.099		
0109G1	3	73	7.617	3	2.803				
	4	73	3.879	14	1.642				
	5	73	1.331	6	1.416				
	6	73	0.793	17	0.680				
	7	73	0.736	14	0.425				
	8	73	0.396	12	0.481				
	9	73	0.340	16	0.311				
	10	73	0.481	14	0.736				
	11	73	2.294	18	0.481				
	12	73	1.756	15	0.680				
	1	74	7.079	5	6.258	18	2.265		
	2	74	2.718	10	1.303	23	3.058		
0109H1	3	73	49.271	3	18.123				
	4	73	25.230	14	10.449				
	5	73	8.269	6	8.863				
	6	73	4.417	17	3.596				
	7	73	3.993	14	2.010				
	8	73	1.727	12	2.294				
	9	73	1.501	16	1.331				
	10	73	2.294	14	4.106				
	11	73	14.668	18	2.379				
	12	73	11.270	15	3.738				
	1	74	46.156	5	44.174	18	14.753		
	2	74	17.443	10	8.042	23	19.822		
0109J1	3	73	5085.703	3	1639.545				
	4	73	2187.193	14	764.555				
	5	73	2337.272	6	1897.229				
	6	73	2433.550	17	2058.635				
	7	73	1409.329	14	1537.605				
	8	73	1257.268	12	1446.991				
	9	73	955.127	16	481.386				
	10	73	871.593	14	464.396				
	11	73	1313.902	18	744.733				
	12	73	3124.764	15	1829.268				
	1	74	6430.754	5	5753.980	18	6167.406		
	2	74	4714.754	10	4734.574	23	4006.834		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0109 PICKWICK RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0109K1	3	73	4.670	3	1.586				
	4	73	2.747	14	1.671				
	5	73	1.756	6	2.067				
	6	73	1.133	17	1.076				
	7	73	0.821	14	0.651				
	8	73	0.595	12	0.991				
	9	73	0.425	16	0.453				
	10	73	0.453	14	0.595				
	11	73	2.152	18	0.425				
	12	73	1.444	15	0.623				
	1	74	4.955	5	3.540	18	1.926		
	2	74	2.577	10	1.388	23	3.228		
0109L1	3	73	1.388	3	0.425				
	4	73	0.736	14	0.453				
	5	73	0.481	6	0.566				
	6	73	0.311	16	0.311				
	7	73	0.224	14	0.176				
	8	73	0.161	12	0.275				
	9	73	0.116	16	0.122				
	10	73	0.119	14	0.164				
	11	73	0.595	18	0.116				
	12	73	0.396	15	0.167				
	1	74	1.388	5	0.963	18	0.538		
	2	74	0.708	10	0.396	23	0.678		
0109M1	3	73	18.264	3	4.106				
	4	73	8.552	14	4.389				
	5	73	4.757	6	5.947				
	6	73	2.577	17	2.379				
	7	73	1.614	14	1.189				
	8	73	1.019	12	2.124				
	9	73	0.680	16	0.708				
	10	73	0.680	14	1.076				
	11	73	6.230	18	0.651				
	12	73	3.568	15	1.076				
	1	74	18.689	5	12.176	18	5.380		
	2	74	7.929	10	4.078	23	10.902		
0109N1	3	73	11.468	3	3.341				
	4	73	3.964	14	2.549				
	5	73	1.472	6	0.878				
	6	73	0.934	16	0.991				
	7	73	0.878	14	0.453				
	8	73	0.102	12	0.113				
	9	73	0.028	16	0.037				
	10	73	0.059	14	0.042				
	11	73	0.934	18	0.011				
	12	73	4.106	15	0.340				
	1	74	9.911	5	6.938	18	3.256		
	2	74	7.221	10	2.152	23	10.477		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0109 PICKWICK RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0109P1	3	73	58.050	3	14.158				
	4	73	28.317	14	15.291				
	5	73	16.141	6	19.822				
	6	73	9.430	16	9.203				
	7	73	6.145	14	4.587				
	8	73	4.021	12	7.787				
	9	73	2.718	16	2.832				
	10	73	2.775	14	4.106				
	11	73	21.238	18	2.662				
	12	73	12.743	15	4.955				
	1	74	59.465	5	39.644	18	18.406		
	2	74	26.335	10	12.035	23	35.396		
0109Q1	3	73	1.671	3	0.623				
	4	73	0.850	14	0.340				
	5	73	0.283	6	0.311				
	6	73	0.170	17	0.147				
	7	73	0.156	14	0.091				
	8	73	0.088	12	0.105				
	9	73	0.079	16	0.074				
	10	73	0.105	14	0.159				
	11	73	0.510	18	0.108				
	12	73	0.396	15	0.150				
	1	74	1.557	5	1.501	18	0.510		
	2	74	0.595	10	0.269	23	0.680		
0109ZZ	3	73	65.129	3	37.945				
	4	73	24.352	4	43.042				
	5	73	9.911	6	29.308				
	6	73	6.456	16	17.670	17	15.461		
	7	73	6.116	14	9.203				
	8	73	0.850	12	10.562				
	9	73	0.272	15	4.078				
	10	73	0.510	13	3.568				
	11	73	6.570	18	3.483				
	12	73	25.768	15	13.819				
	1	74	58.050	5	84.243	18	41.626		
	2	74	43.042	10	28.600	23	104.772		

APPENDIX C

PHYSICAL AND CHEMICAL DATA

STORET RETRIEVAL DATE 76/07/28

010901
35 04 15.0 088 14 55.0 3
PICKWICK LAKE
47071 ALABAMA

040891

11EPALES 2111202
0090 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	11 20	0000	25.2		36	155	7.50	54	0.100	0.600	0.500	0.033
	11 20	0006	24.6	7.8		150	7.50	55	0.080	0.200	0.480	0.032
	11 20	0015	24.0	7.4		150	7.50	53	0.090	0.200	0.490	0.024
	11 20	0030	23.9	7.3		145	7.50	53	0.100	0.200K	0.490	0.034
	11 20	0045	23.9	7.4		145	7.50	53	0.100	0.200K	0.500	0.037
	11 20	0060	23.6	7.2		145	7.50	53	0.100	0.200K	0.490	0.036
	11 20	0076	23.5	7.3		145	7.40	53	0.110	0.200	0.490	0.036
73/08/15	13 00	0000	29.6		84	169	7.50	54	0.090	0.400	0.350	0.034
	13 00	0005	29.4	6.4		170	7.40	55	0.090	0.300	0.350	0.034
	13 00	0020	29.3	6.0		172	7.30	56	0.090	0.500	0.350	0.035
	13 00	0042	29.3	6.0		170	7.30	57	0.100	0.600	0.360	0.035
73/10/22	10 15	0000	22.9		75	166	7.60	51	0.070	0.500	0.420	0.048
	10 15	0005	22.8	6.8		166	7.50	53	0.050	0.200	0.420	0.044
	10 15	0015	22.8	6.8		166	7.50	58	0.050	0.200K	0.420	0.044
	10 15	0035	22.8	7.4		166	7.50	58	0.050	0.200K	0.420	0.045
	10 15	0055	22.8	7.3		165	7.60	56	0.050	0.200K	0.420	0.043
	10 15	0070	22.8	7.2		167	7.60	56	0.050	0.200K	0.420	0.049

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	11 20	0000	0.067	1.1
	11 20	0006	0.063	
	11 20	0015	0.063	
	11 20	0030	0.056	
	11 20	0045	0.071	
	11 20	0060	0.069	
	11 20	0076	0.067	
73/08/15	13 00	0000	0.044	2.3
	13 00	0005	0.034	
	13 00	0020	0.040	
	13 00	0042	0.041	
73/10/22	10 15	0000	0.060	18.2
	10 15	0005	0.058	
	10 15	0015	0.056	
	10 15	0035	0.060	
	10 15	0055	0.056	
	10 15	0070	0.055	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010902
35 00 10.0 088 12 05.0 3
PICKWICK LAKE
01077 ALABAMA

040891

11EPALES 2111202
0035 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	12 10	0000	25.2		37	145	7.60	53	0.110	0.300	0.440	0.030
	12 10	0006	24.1	7.2		145	7.50	49	0.080	0.300	0.390	0.025
	12 10	0015	23.7	7.2		150	7.50	54	0.110	0.200	0.500	0.035
	12 10	0031	23.6	7.1		150	7.50	54	0.110	0.200	0.490	0.035
73/08/15	13 45	0000	30.2	7.2	84	173	7.50	56	0.050	0.400	0.360	0.033
	13 45	0008	29.8	6.4		172	7.40	56	0.070	0.300	0.380	0.037
	13 45	0017	29.2	6.0		171	7.30	57	0.080	0.400	0.380	0.040

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	12 10	0000	0.063	1.5
	12 10	0006	0.056	
	12 10	0015	0.060	
	12 10	0031	0.069	
73/08/15	13 45	0000	0.042	3.4
	13 45	0008	0.041	
	13 45	0017	0.041	

STORET RETRIEVAL DATE 76/07/22

010903
34 55 33.0 088 10 09.0 3
PICKWICK LAKE
01077 ALABAMA

040891

11EPALES 2111202
0034 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	12 45	0000	25.5		38	140	8.30	51	0.050	0.400	0.250	0.005
	12 45	0006	23.9	7.4		145	7.70	52	0.080	0.200	0.470	0.027
	12 45	0015	23.6	7.0		145	7.60	58	0.140	0.300	0.480	0.035
	12 45	0030	23.2	4.9		145	7.50	56	0.160	0.300	0.440	0.035
73/10/22	10 50	0000	22.6		48	166	7.80	56	0.050	0.300	0.410	0.039
	10 50	0005	22.4			164	7.70	57	0.060	0.200	0.410	0.044
	10 50	0015	22.3	7.2		163	7.70	59	0.060	0.200K	0.410	0.047
	10 50	0024	22.3	7.2		163	7.60	60	0.060	0.200K	0.410	0.046

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	12 45	0000	0.036	2.1
	12 45	0006	0.067	
	12 45	0015	0.064	
	12 45	0030	0.075	
73/10/22	10 50	0000	0.061	3.5
	10 50	0005	0.056	
	10 50	0015	0.055	
	10 50	0024	0.061	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010904
34 51 51.0 088 06 35.0 3
PICKWICK LAKE
01033 ALABAMA

040891

11EPALES 2111202
0036 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	14 30	0000	28.5		39	138	8.70	52	0.060	1.000	0.200	0.006
	14 30	0006	24.8	8.3		125	8.30	52	0.100	0.300	0.420	0.027
	14 30	0015	23.7	7.0		145	7.80	53	0.150	0.200	0.500	0.039
	14 30	0032	21.6	3.1		130	7.30	49	0.130	0.200	0.460	0.022
73/08/15	14 20	0000	30.6	9.5	48	174	7.90	58	0.050	0.400	0.210	0.011
	14 20	0005	29.7	6.8		173	7.60	58	0.060	0.500	0.290	0.023
	14 20	0010	29.0			171						
	14 20	0015	28.9	6.0		171	7.40	58	0.100	0.400	0.320	0.030
	14 20	0022	28.8	6.4		171	7.30	58	0.090	0.500	0.320	0.033

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	14 30	0000	0.043	2.2
	14 30	0006	0.071	
	14 30	0015	0.068	
	14 30	0032	0.057	
73/08/15	14 20	0000	0.035	6.3
	14 20	0005	0.043	
	14 20	0015	0.037	
	14 20	0022	0.039	

STORET RETRIEVAL DATE 76/07/22

010905
34 54 45.0 088 04 38.0 3
MICKeICK LAKE
01077 ALABAMA

040891

11EPALES 2111202
0050 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	15	00 0000	25.6		38	150	7.40	55	0.140	0.300	0.500	0.050
	15	00 0006	24.3	7.4		150	7.40	56	0.140	0.300	0.520	0.052
	15	00 0015	24.1	7.4		150	7.50	56	0.080	0.200	0.470	0.028
	15	00 0030	24.1	7.4		150	7.50	56	0.080	0.200	0.470	0.028
	15	00 0046	24.1	7.4		150	7.50	56	0.090	0.200	0.480	0.028
73/08/15	16	00 0000	29.4	6.0	72	166	7.20	57	0.110	0.800	0.380	0.055
	16	00 0015	29.0	5.6		168	7.20	50	0.100	0.400	0.360	0.052
	16	00 0030	29.0	5.6		168	7.20	52	0.100	0.200	0.360	0.053
	16	00 0050	29.0	5.6		168	7.20	52	0.100	0.300	0.360	0.052
73/10/22	11	10 0000	23.3		16	175	7.70	63	0.060	0.200K	0.480	0.050
	11	10 0005	23.2	7.2		174	7.70	61	0.060	0.200K	0.480	0.048
	11	10 0015	23.1	7.4		177	7.60	59	0.060	0.200K	0.480	0.051
	11	10 0030	22.9	7.2		174	7.60	58	0.070	0.200K	0.460	0.051
	11	10 0050	22.5	7.0		166	7.40					

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	15	00 0000	0.079	0.6
	15	00 0006	0.076	
	15	00 0015	0.059	
	15	00 0030	0.053	
	15	00 0046	0.049	
73/08/15	16	00 0000	0.055	2.1
	16	00 0015	0.053	
	16	00 0030	0.053	
	16	00 0050	0.052	
73/10/22	11	10 0000	0.059	1.6
	11	10 0005	0.059	
	11	10 0015	0.057	
	11	10 0030	0.057	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010906
34 46 58.0 087 53 20.0 3
PICKWICK LAKE
01077 ALABAMA
040891

TIEPALES 2111202
0035 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	15 35	0000	25.1		30	150	7.30	58	0.110	0.500	0.490	0.031
	15 35	0006	24.4	7.3		145	7.30	58	0.080	0.200	0.470	0.026
	15 35	0015	24.2	7.3		145	7.30	56	0.080	0.200	0.470	0.027
	15 35	0031	24.1	7.4		145	7.40	57	0.080	0.200	0.470	0.026

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	15 35	0000	0.062	1.2
	15 35	0006	0.057	
	15 35	0015	0.053	
	15 35	0031	0.055	

APPENDIX D

TRIBUTARY DATA

STORET RETRIEVAL DATE 76/07/22

0109A1 LS0109A1
34 48 00.0 087 37 32.0 4
TENNESSEE RIVER
01 7.5 FLORENCE
I/PICKWICK RESVR 040891
WILSON DAM SPILLWAY NEAR CITY FLORENCE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	16 00		0.640	3.000	0.082	0.025	0.045
73/04/04	11 00		0.500	2.150	0.085	0.037	0.060
73/06/15	10 00		0.378	0.300	0.027	0.024	0.045
73/07/14	11 30		0.320	1.760	0.046	0.028	0.040
73/08/11	09 00		0.320	0.100K	0.013	0.029	0.040
73/09/15	09 30		0.310	0.220	0.032	0.031	0.040
73/10/13	11 00		0.310	0.210	0.060	0.029	0.045
73/11/17	10 00		0.450	0.200	0.048	0.036	0.070
73/12/08	09 00		0.400	0.300	0.044	0.044	0.065
74/01/05	10 00		0.504	2.100	0.068	0.040	0.075
74/01/19	10 00		0.550	0.200	0.048	0.030	0.065
74/02/10	10 30		0.616	0.100K	0.035	0.030	0.050
74/02/23	09 30		0.540	0.200	0.035	0.030	0.060

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109H1 LS0109H1
34 44 00.0 087 42 30.0 4
SPRING CREEK
01 7.5 TUSCUMBIA
T/PICKWICK RESVR 040891
FOOT BRDG ABOVE OLD LEE HWYBRDG
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	11 45		0.980	0.460	0.105	0.037	0.102
73/04/04	12 00		1.260	1.100	0.050	0.022	0.040
73/05/15	13 17		1.680	0.120	0.030	0.024	0.035
73/06/15	12 15		1.440	0.440	0.033	0.040	0.135
73/07/04	14 40		1.060	0.690	0.031	0.034	0.125
73/08/21	14 45		1.860	0.120	0.015	0.036	0.037
73/09/15	08 30		1.820	0.100K	0.007	0.042	0.061
73/10/13	07 35		1.760	0.350	0.046	0.054	0.065
73/11/17	08 03		1.660	0.100K	0.011	0.058	0.095
73/12/08	09 00		1.400	0.200	0.036	0.036	0.040
74/01/09	09 35		0.792	0.300	0.016	0.028	0.060
74/01/22	07 40		0.920	0.700	0.032	0.024	0.060
74/02/10	12 55		1.520	1.200	0.010	0.020	0.050
74/02/24	09 10		1.430	0.100	0.005	0.015	0.055

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104C1 LS0104C1
34 42 00.0 087 46 00.0 4
LITTLE BEAR CREEK
01 MAP COLBERT CO
T/PICKWICK RESVR 040891
US 72 BRDG (SOUTH BRDG)
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	12 00		0.198	1.000	0.430	0.013	0.035
73/04/12	13 30		0.130	0.440	0.022	0.005K	0.010
73/05/15	14 55		0.140	0.600	0.016	0.009	0.035
73/06/15	12 00		0.198	0.560	0.020	0.012	0.065
73/07/09	14 30		0.138	0.720	0.021	0.009	0.075
73/08/21	14 30		0.069	0.520	0.027	0.017	0.045
73/09/15	10 30		0.092	0.540	0.058	0.019	0.060
73/10/13	09 10		0.092	0.610	0.040	0.006	0.035
73/11/17	09 50		0.230	0.250	0.008	0.012	0.035
73/12/08	10 55		0.300	0.500	0.016	0.012	0.020
74/01/09	10 58		0.352	0.400	0.012	0.008	0.015
74/01/22	09 06		0.410	0.900	0.044	0.008	0.020
74/02/10	15 45		0.330	0.100	0.010	0.005K	0.015
74/02/24	11 12		0.290	0.100K	0.005	0.005K	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

38

STORET RETRIEVAL DATE 76/07/22

0109D1 LS0109D1
34 43 30.0 087 51 00.0 4
CANE CREEK
01 MAP COLBERT CO
T/PICK#ICK RESVR 040891
NR TRESTLE #ELO US 72 #RDG ESE OF CHEROK
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	12 15		0.105	0.500	0.100		0.035
73/04/12	12 30		0.126	0.140	0.014	0.005K	0.015
73/05/15	13 40		0.290	0.200	0.021	0.005K	0.020
73/06/15	12 00		0.147	0.400	0.020	0.005K	0.022
73/07/09	13 00		0.110	0.520	0.032	0.024	0.105
73/08/21	13 40		0.023	0.470	0.011	0.013	0.035
73/09/15	09 00		0.037	0.730	0.014	0.033	0.120
73/10/13	08 30		0.046	0.520	0.042	0.007	0.055
73/11/17	08 21		0.023	0.250	0.009	0.011	0.030
73/12/08	09 20		0.264	0.200	0.012	0.008	0.015
74/01/22	07 59		0.320	0.400	0.144	0.008	0.015
74/02/10	14 10		0.312	0.400	0.010	0.005K	0.010
74/02/24	09 25		0.264	0.100K	0.015	0.005K	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109E1 LS0109E1
34 46 00.0 088 04 00.0 4
BUZZARD ROOST CREEK
01 7.5 MARGERUM
T/PICKWICK RESVR 040891
BRDG ON GRAVEL RD N OF MARGERUM
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	01 00		0.190	1.100	0.056	0.022	0.055
73/04/13	12 50		0.180	1.000	0.034	0.005K	0.015
73/05/15	14 04		0.294	2.100	0.021	0.006	0.020
73/06/15	11 15		0.160	0.215	0.011	0.010	0.035
73/07/09			0.260	0.330	0.029	0.016	0.065
73/08/21	14 00		0.063	0.290	0.008	0.011	0.030
73/09/15	09 35		0.098	0.350	0.016	0.012	0.040
73/10/13	08 40		0.069	0.400	0.033	0.006	0.030
73/11/17	09 10		0.074	1.100	0.038	0.009	0.035
73/12/09	10 00		0.336	0.500	0.020	0.008	0.020
74/01/09	10 10		0.270	0.500	0.032	0.008	0.020
74/01/22	08 25		0.390	0.800	0.096	0.008	0.015
74/02/10	14 50		0.300	0.400	0.015	0.005K	0.020
74/02/24	10 05		0.250	0.300	0.015	0.005K	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109F1 LS0109F1
34 44 00.0 088 04 30.0 4
BIG BEAR
01 MAP COLBERT CO
T/PICKWICK RESVR 040891
CO RT 1 BRDG .5 MI E OF LIBERTY CHURCH
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	13 15		0.320	0.280	0.040	0.028	0.060
73/04/13	13 00		0.310	0.630	0.037	0.005K	0.035
73/05/15	14 22		0.357	0.210	0.042	0.010	0.025
73/06/15	11 30		0.430	0.480	0.055	0.017	0.070
73/07/09	19 00		0.336	0.350	0.029	0.015	0.065
73/08/21	14 15		0.315	0.340	0.015	0.010	0.045
73/09/15	09 50		0.250	0.360	0.021	0.016	0.050
73/10/13	09 05		0.210	0.370	0.056	0.014	0.045
73/11/17	09 17		0.063	0.300	0.008	0.008	0.045
73/12/08	10 20		0.660	0.400	0.024	0.008	0.020
74/01/09	10 26		0.490	0.900	0.036	0.012	0.055
74/01/22	08 35		0.620	0.700	0.054	0.012	0.065
74/02/10	15 10		0.480	1.100	0.040	0.010	0.060
74/02/24	10 30		0.420	0.400	0.030	0.015	0.080

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109G1 28X1G1
34 53 10.0 088 10 30.0 4
INDIAN CREEK
01 7.5 YELLOW CREEK
T/PICKWICK RESVR 040891
RD BRDG 7 MI N OF IUKA MS
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	14	00	0.200	0.600	0.046	0.026	0.065
73/04/14	10	05	0.147	2.520	0.051	0.019	0.050
73/05/06	10	50	0.200	1.800	0.120	0.042	0.055
73/06/17	10	57	0.240	0.250	0.030	0.027	0.045
73/07/14	12	05	0.198	0.180	0.017	0.012	0.035
73/08/12	13	10	0.180	0.300	0.032	0.015	0.055
73/09/16	14	15	0.294	0.390	0.034	0.056	0.100
73/10/14	09	24	0.290	0.550	0.075	0.060	0.175
73/11/18	10	16	0.320	0.300	0.025	0.080	0.145
73/12/15	13	45	0.336	0.300	0.088	0.052	0.095
74/01/05	09	00	0.288	0.200	0.088	0.028	0.050
74/01/18	13	20	0.320	0.300	0.076	0.020	0.055
74/02/10	10	45	0.290	0.100K	0.035	0.010	0.015
74/02/23	12	00	0.224	0.300	0.045	0.015	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

01094I 2HX1HI
34 55 00.0 088 15 00.0 4
YELLOW CREEK
01 7.5 YELLOW CREEK
T/PICKWICK RESVR 040891
ST HWY 25 BRDG 6 MI S TN-MS STATE LINE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	13 40		0.147	1.470	0.088	0.020	0.080
73/04/14	11 25		0.078	2.400	0.075	0.006	0.025
73/05/06	10 30		0.105	2.200	0.088	0.022	0.045
73/06/17	10 40		0.092	0.440	0.056	0.019	0.060
73/07/14	11 55		0.110	0.350	0.052	0.017	0.045
73/08/12	12 55		0.080	0.260	0.022	0.005K	0.040
73/09/16	14 00		0.086	0.420	0.037	0.012	0.045
73/10/14	09 55		0.110	0.450	0.052	0.016	0.085
73/11/18	10 30		0.013	0.200	0.028	0.012	0.035
73/12/15	13 30		0.124	0.200	0.032	0.012	0.040
74/01/05	09 30		0.140	0.300	0.024	0.028	0.050
74/01/18	13 10		0.168	0.100	0.024	0.005	0.035
74/02/10	11 15		0.140	0.100	0.030	0.010	0.020
74/02/23	11 40		0.108	0.200	0.025	0.010	0.045

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109J1 47X1J1
35 04 00.0 088 15 30.0 4
TENNESSEE RIVER
01 7.5 COUNCE
O/PICKWICK RESVR 040891
PUBLIC FISHING PLATFORM N END OF DAM
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	12 25		0.610	2.400	0.126	0.035	0.055
73/04/14	12 00		0.480	3.800	0.210	0.042	0.070
73/05/06	12 45		0.560	1.200	0.098	0.048	0.055
73/06/17	11 30		0.399	0.300	0.054	0.028	0.055
73/07/14	11 00		0.280	0.310	0.037	0.013	0.040
73/08/12	11 00		0.260	0.240	0.033	0.031	0.055
73/09/16	12 00		0.315	0.340	0.058	0.037	0.050
73/10/14	12 00		0.350	0.150	0.042	0.040	0.055
73/11/18	11 30		0.480	0.500	0.058	0.060	0.065
73/12/15	13 00		0.450	0.200	0.048	0.060	0.075
74/01/05	10 00		0.510	0.300	0.044	0.048	0.085
74/01/18	12 00		0.552	0.200	0.040	0.040	0.105
74/02/10	11 45		0.640	0.300	0.040	0.035	0.065
74/02/23	11 15		0.552	0.200	0.030	0.040	0.065

STORET RETRIEVAL DATE 76/07/22

0109K1 LS0109K1
34 06 30.0 088 03 30.0 4
BUMPASS CREEK
01 7.5 WATERLOO
T/PICKWICK RESVR 033891
CO RT 14 BRDG 1.2 MI N OF WATERLOO
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	11	25	0.168	1.100	0.046	0.008	0.015
73/04/14	10	30	0.115	2.000	0.040	0.005K	0.010
73/05/06	10	43	0.115	0.585	0.038	0.005K	0.015
73/06/17	10	40	0.140	0.120	0.031	0.005K	0.010
73/07/14	10	20	0.180	0.100K	0.026	0.005K	0.010
73/08/12	10	15	0.120	0.100K	0.013	0.005K	0.010
73/09/16	11	30	0.140	0.130	0.028	0.005K	0.010
73/10/14	11	00	0.160	0.150	0.023	0.007	0.020
73/11/18	12	00	0.126	0.150	0.042	0.008	0.008
73/12/15	12	00	0.276	0.100K	0.012	0.008	0.010
74/01/05	11	30	0.310	0.100K	0.012	0.012	0.012
74/01/18			0.320	0.100K	0.016	0.005K	0.020
74/02/10	10	30	0.192	0.100K	0.015	0.005	0.005
74/02/23	10	20	0.148	0.100	0.020	0.005K	0.005K

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109L1 LS0109L1
34 48 00.0 087 39 30.0 4
SWEETWATER CREEK
01 7.5 FLORENCE
T/PICKWICK RESVR 040891
BRDG ON UNION AVE IN E FLORENCE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	09 00		1.840	0.100K	0.040	0.030	0.050
73/04/14	10 30		1.720	1.200	0.048	0.037	0.050
73/05/06	08 55		1.800	1.100	0.039	0.039	0.040
73/06/14	11 55		1.920	0.100K	0.007	0.056	0.065
73/07/14	08 40		1.740	0.220	0.027	0.054	0.085
73/08/12	09 10		1.600	0.100K	0.010	0.020	0.035
73/09/16	09 00		1.620	0.225	0.009	0.042	0.080
73/10/14	09 00		1.040	0.300	0.052	0.132	0.175
73/11/18	08 30		1.580	0.100K	0.013	0.072	0.072
73/12/15	10 00		1.700	0.100K	0.008	0.048	0.075
74/01/05	07 30		2.100	0.200	0.080	0.044	0.050
74/01/18	10 00		1.920	0.500	0.120	0.055	0.130
74/02/10	09 30		2.270	0.250	0.025	0.025	0.052
74/02/23	09 00		1.850	0.300	0.075	0.045	0.075

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109M1 LS0109M1
34 57 00.0 088 02 00.0 4
SECOND CREEK
01 7.5 WATERLOO
T/PICKWICK RESVR 040891
BRDG ON RD 3 MI SW OF FORDSMILL CHURCH
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	11 05		0.198	3.400	0.088	0.008	0.017
73/04/14	10 00		0.126	0.940	0.029	0.005K	0.005K
73/05/06	10 10		0.140	1.050	0.039	0.005K	0.015
73/06/17	10 25		0.154	0.170	0.020	0.013	0.015
73/07/14	10 00		0.190	0.100K	0.019	0.007	0.010
73/08/12	10 00		0.180	0.100K	0.017	0.005K	0.010
73/09/16	10 30		0.168	0.170	0.025	0.008	0.015
73/10/14	10 00		0.168	0.150	0.028	0.017	0.025
73/11/18	12 15		0.044	0.100K	0.020	0.008	0.010
73/12/15	11 50		0.380	0.100K	0.012	0.012	0.012
74/01/05	12 00		0.270	0.100K	0.020	0.012	0.015
74/01/18	11 25		0.312	0.100	0.020	0.008	0.025
74/02/10	13 15		0.240	0.100K	0.040	0.005K	0.005K
74/02/23	10 05		0.192	0.100K	0.015	0.010	0.010

K VALUE KNOWN TO BE
LESS THAN INDICATED

47

STORET RETRIEVAL DATE 76/07/22

0109N1 LS0109N1
34 46 30.0 087 49 30.0 4
SINKING CREEK
01 7.5 SINKING CR
T/PICK#ICK RESVR 040891
BRDG ON RD BELO CUNNINGHAM POND
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	10	20	0.450	1.760	0.070	0.018	0.080
73/04/14	10	15	0.480	9.500	0.330	0.015	0.050
73/05/06	09	45	0.580	1.380	0.054	0.033	0.055
73/06/16	11	05	0.440	0.720	0.046	0.058	0.155
73/07/14	09	15	0.660	0.200	0.024	0.016	0.060
73/08/12	09	00	0.350	0.100K	0.017	0.005K	0.020
73/09/16	10	00	0.230	0.360	0.013	0.008	0.025
73/10/14	10	00	0.231	0.150	0.012	0.010	0.020
73/11/18	13	00	0.025	0.250	0.014	0.008	0.010
73/12/15	11	00	0.552		0.008	0.012	0.035
74/01/05	12	30	0.277	0.100K	0.020	0.012	0.015
74/01/18	10	35	0.650	0.300	0.020	0.020	0.070
74/02/10	14	00	0.730	0.300	0.075	0.010	0.020
74/02/23	09	20	0.252	0.700	0.025	0.040	0.255

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0109P1 LS0109P1
34 48 30.0 087 42 00.0 4
CYPRESS CREEK
01 7.5 FLORENCE
T/PICKWICK RESVR 040891
BRDG ON WATERLOO RD @ EDGE OF FLORENCE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	09 50		0.480	0.675	0.090	0.027	0.095
73/04/14	10 05		0.330	1.500	0.031	0.010	0.025
73/05/06	10 15		0.400	0.610	0.015	0.027	0.030
73/06/16	11 40		0.480	0.250	0.011	0.038	0.082
73/07/14	08 55		0.470	0.140	0.015	0.017	0.050
73/08/12	10 00		0.340	0.100K	0.009	0.005K	0.030
73/09/16	09 30		0.430	0.270	0.010	0.021	0.045
73/10/14	09 30		0.273	0.250	0.034	0.023	0.080
73/11/18	08 45		0.180	0.150	0.010	0.008	0.008
73/12/15	10 30		0.530	0.100K	0.005K	0.016	0.035
74/01/05	13 30		0.630	1.600	0.048	0.024	0.055
74/01/18	10 15		0.616	0.100K	0.012	0.012	0.030
74/02/10	14 15		0.580	0.100K	0.025	0.010	0.015
74/02/23	09 30		0.470	0.100	0.015	0.015	0.035

K VALUE KNOWN TO BE
LESS THAN INDICATED

49

STORET RETRIEVAL DATE 76/07/22

010901 25X101
34 49 30.0 088 16 00.0 4
SANDY CREEK ARM
01 7.5 DOSKIE
T/PICKWICK RESVR 040891
1 MI AHV ST HWY 25 BRDG S OF IN/MS ST LI
11EPALES 211204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	12 45		0.040	2.100	0.066	0.008	0.015
73/04/14	10 10		0.029	1.700	0.071	0.005K	0.005K
73/05/06	10 30		0.046	1.400	0.048	0.005K	0.005K
73/06/17	10 25		0.046	0.200	0.024	0.020	0.025
73/07/14	11 15		0.084	0.400	0.038	0.005K	0.030
73/08/12	12 45		0.018	0.295	0.014	0.007	0.020
73/09/16	13 30		0.075	0.350	0.026	0.005K	0.025
73/10/14	09 44		0.069	0.325	0.031	0.008	0.030
73/11/18	10 39		0.160	0.300	0.016	0.008	0.010
73/12/15	13 15		0.120	0.300	0.048	0.012	0.045
74/01/05	09 45		0.216	0.500	0.072	0.028	0.055
74/01/18	13 00		0.084	0.300	0.048	0.016	0.055
74/02/10	11 00		0.168	0.300	0.045	0.015	0.045
74/02/23	11 35		0.124	0.200	0.045	0.010	0.035

K VALUE KNOWN TO BE
LESS THAN INDICATED

APPENDIX E

PARAMETRIC RANKINGS OF LAKES SAMPLED BY NES IN 1974 STATE OF ALABAMA

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	13- MIN DO	MEDIAN DISS ORTHO P
0101	BANKHEAD LAKE	0.024	0.770	452.667	4.017	14.900	0.007
0103	GANTT RESERVOIR	0.029	0.300	465.778	2.144	14.000	0.008
0104	GUNTERSVILLE RESERVOIR	0.044	0.480	461.111	8.567	12.200	0.014
0105	HOLT LOCK AND DAM	0.018	0.835	449.417	2.183	13.600	0.005
0106	LAY LAKE	0.076	0.390	470.778	7.656	13.000	0.032
0107	MARTIN LAKE	0.017	0.170	435.250	6.407	15.000	0.004
0108	MITCHELL LAKE	0.053	0.290	466.000	6.211	12.400	0.022
0109	PICKWICK LAKE	0.056	0.535	455.000	2.450	11.900	0.035
0112	WEISS RESERVOIR	0.092	0.260	478.389	11.261	14.900	0.034
0114	WILSON LAKE	0.053	0.460	447.714	7.400	10.200	0.022
0115	LAKE PURDY	0.049	0.170	437.889	12.711	15.000	0.014

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P	INDEX NO
0101	BANKHEAD LAKE	75 (7)	10 (1)	60 (6)	70 (7)	25 (2)	80 (8)	320
0103	GANTT RESERVOIR	75 (7)	60 (6)	30 (3)	100 (10)	40 (4)	70 (7)	375
0104	GUNTERSVILLE RESERVOIR	60 (6)	30 (3)	40 (4)	20 (2)	80 (8)	55 (5)	285
0105	HOLT LOCK AND DAM	90 (9)	0 (0)	70 (7)	90 (9)	50 (5)	90 (9)	390
0106	LAY LAKE	10 (1)	50 (5)	10 (1)	40 (4)	60 (6)	20 (2)	190
0107	MARTIN LAKE	100 (10)	95 (9)	100 (10)	50 (5)	5 (0)	100 (10)	450
0108	MITCHELL LAKE	40 (4)	70 (7)	20 (2)	60 (6)	70 (7)	35 (3)	295
0109	PICKWICK LAKE	20 (2)	20 (2)	50 (5)	80 (8)	90 (9)	0 (0)	260
0112	WEISS RESERVOIR	0 (0)	80 (8)	0 (0)	10 (1)	25 (2)	10 (1)	125
0114	WILSON LAKE	30 (3)	40 (4)	80 (8)	30 (3)	100 (10)	35 (3)	315
0115	LAKE PURDY	50 (5)	95 (9)	90 (9)	0 (0)	5 (0)	55 (5)	295

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	0107	MARTIN LAKE	450
2	0105	HOLT LOCK AND DAM	390
3	0103	GANTT RESERVOIR	375
4	0101	BANKHEAD LAKE	320
5	0114	WILSON LAKE	315
6	0115	LAKE PURDY	295
7	0108	MITCHELL LAKE	295
8	0104	GUNTERSVILLE RESERVOIR	285
9	0109	PICKWICK LAKE	260
10	0106	LAY LAKE	190
11	0112	WEISS RESERVOIR	125